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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**Before the Board of Patent Appeals and Interferences**

Inventors : Franck Abelard et al.  
Application No. : 10/776,560  
Filed : February 11, 2004  
Title : METHOD OF RECORDING SCRAMBLED DIGITAL DATA,  
STORAGE MEDIUM AND METHOD OF READING SUCH DATA  
Examiner : Christopher J. Brown  
Art Unit : 2439

**APPEAL BRIEF**

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May It Please The Honorable Board:

Applicants appeal from the Final Office Action dated December 1, 2009 in which claims 1, 3, 4, 5, 14, 15 and 16 of the above-identified application stand rejected.

Applicants waive an Oral Hearing for this appeal.

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Date: *July 19, 2010*

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**I. REAL PARTY IN INTEREST**

The real party in interest of Application No. 10/776,560 is:

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**II. RELATED APPEALS AND INTERFERENCES**

There are no related Appeals or Interferences.

**III. STATUS OF THE CLAIMS.**

Claims 1, 3, 4, 5, 14, 15, 16 are pending in this application.

Claims 1, 3, 4, 5, 14, 15, 16 have been rejected.

The rejections of claims 1, 3, 4, 5, 14, 15, 16 are appealed.

#### **IV. STATUS OF AMENDMENTS**

In response to the Final Office Action dated December 1, 2009, Applicants' representative filed a Notice of Appeal on May 27, 2010, along with a three month extension of time.

This appeal is directed to the claims as they stood at the time of the Final Office Action of December 1, 2009, which are shown in the Claims Appendix of this Brief.

## **V. SUMMARY OF CLAIMED SUBJECT MATTER**

There are two independent claims pending in the application: claims 1 and 16.

Applicants' inventive concept relates to the field of recording compressed and scrambled digital data and in particular to the playback of these data at speeds different from which they were recorded, known as trick play modes. These trick play modes are not easy to implement when coded, e.g., according to the MPEG-2 standard that was conceived for the transmission of digital data. In particular, the MPEG-2 standard envisaged that decoding of the data be done essentially in a "forward play" mode at normal speed. Hence, it can be appreciated that a "backward play" mode requires the decoding of multiple images before the temporally correct image can be constructed and displayed. When the recorded digital data are scrambled or encrypted, "trick play" modes are yet more difficult to implement because the descrambling keys must be retrieved before being able to descramble and then decode. Typically the descrambling keys are transmitted, in the digital data stream, in ECM data packets with the keys denoted as CW or control words. The ECM control word typically precedes a change of data encryption in order to allow descrambling and decoding of the payload data. (Applicants' specification, p. 1, ln. 15 to p. 2, ln. 18.)

The basic idea of the invention is to create a table of ECMs in such a way as to very quickly retrieve the ECM containing the appropriate CW key during the reading of the recorded data. This advantageously makes it possible to gain access to the ECMs in advance with respect to the moment at which it is necessary to descramble the data and hence to be able to decrypt the ECMs in advance so as to retrieve the CW keys. (Applicants' specification, p. 5, lns. 30 – 36.)

Applicants' claim 1 is directed to a method of identifying, in a received scrambled data stream, a plurality of control packets containing at least one key having a value which changes periodically and where at least one of the plurality of control packets is identical to the descrambling key of a preceding control packet. The control packet containing the descrambling key is stored in a table – however, only control packets having a changed value are stored, control packets with an unchanged value are not stored. The table and the scrambled data stream are then recorded on a storage medium. In summary Applicants' table

contains only entries relating to changes of descrambling key and thus the table contains no duplicated values. (Applicants' specification, p. 6, lns. 4-17; p. 8, lns. 26-33; FIG. 3.)

Applicants' remaining independent claim 16 also relates to a method of creating a descrambling key table and requires receiving a scrambled digital data stream including a plurality of control packets containing a descrambling key having a value which periodically changes and at other times is identical to a preceding control packet; identifying in the data stream control packets containing the descrambling key; and creating a table of control packets containing descrambling keys when the descrambling key value is absent from the table. The data stream and table are recorded on a data storage medium. Stated differently, only values that are not present in the table can be added. (Applicants' specification, p. 6, lns. 4-17; p. 8, lns. 26-33; FIG. 3.)



**VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

There is single ground of rejection to be reviewed on Appeal.

- (1) Whether claims 1, 3, 4, 5, 14, 15 and 16 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent Application No. 2004/0062398 published April 1, 2004 to Unger (*Unger*) in view of U.S. Patent Application No. 2004/0083177 published April 29, 2004 to Chen et al. (*Chen*).

## VII. ARGUMENT

The rejection of claims 1, 3, 4, 5, 14, 15 and 16 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application No. 2004/0062398 published April 1, 2004 to Unger (*Unger*) in view of U.S. Patent Application No. 2004/0083177 published April 29, 2004 to Chen et al. (*Chen*).

### CLAIMS 1 and 16

Independent claims 1 and 16 are patentable because the combination of *Unger* and *Chen* does not yield Applicants' claimed invention.

Applicants' dependent claims 3, 4, 5, 14 and 15 stand or fall with Applicants' independent claim 1.

### CLAIMS 1 and 16 ARE PATENTABLE

Applicants' independent claims 1 and 16 require either

storing in a table said control packets containing said at least one descrambling key when said value changes; and not storing said control packets containing said at least one descrambling key when said value has not changed (claim 1, emphasis added); or

creating a table of said control packets containing said descrambling key when said descrambling key value is absent from said table (claim 16, emphasis added).

In other words, when duplicate, or repeated, keys are received, the duplicate, or repeated, keys are not stored.

With regard to these claimed requirements, initially, in the Final Action dated December 1, 2009, the Examiner asserted that FIG. 3 of *Unger* supported the Examiner's position that

keys are stored only if different (odd, even) and the packets between them do not store a key.

Final Office Action, Response to Arguments, p. 2, emphasis added.

However, in the Advisory Action dated March 15, 2010, the Examiner made the following admission as a result of Applicants' arguments in Applicants' reply of March 8, 2010:

Examiner admits *Unger* does not teach keys are of different values.

Advisory Action, March 15, 2010, p. 2.

In other words, the Examiner admitted that *Unger* does not describe that keys are stored only if different as required by Applicants' independent claims 1 and 16.

With regard to this claim limitation, in the Advisory Action of March 15, 2010, the Examiner now points to *Chen*. However, the Examiner's characterization of *Chen* – like *Unger* – is, respectfully, incorrect.

With regard to *Chen*, the Examiner states:

The *Chen* reference teaches the same in Paragraphs [0050], [0051], [0053] [0054] and visibly shown in Figure 2A, 2B, 2C, 2D. Thus *Chen* teaches storing an ECM, "only" when the key is different because the key in *Chen* changes only once per key period. *Chen* thus stores only one ECM per period, as described (sic) in the cited paragraphs and figures.

Advisory Action, March 15, 2010, p. 2.

Yet the Examiner's characterization of *Chen* with respect to Applicants' claimed invention is wrong for a number of reasons. Consider Applicants' claim 1 (emphasis added):

Method of recording scrambled digital data comprising the steps of:

- (a) receiving a scrambled digital data stream including a plurality of control packets containing at least one descrambling key; said at least one descrambling key having a periodically changing value, the at least one descrambling key of at least one of said plurality of control packets being identical to the at least one descrambling key of the preceding control packet;

- (b) identifying in said data stream said plurality of control packets containing said at least one key for descrambling at least a part of the data of the stream;
- (c) storing in a table said control packets containing said at least one descrambling key when said value changes; and not storing said control packets containing said at least one descrambling key when said value has not changed;  
and,
- (d) recording the data stream and said table on a data storage medium.

First, Applicants' claimed invention is directed to recording and decryption. In contrast, *Chen* is directed to encryption. (*Chen*, paragraphs [0050], [0051], [0053] and [0054].) As such, even if *Chen* describes having one ECM per key period – this is irrelevant to Applicants' claimed invention. The simple fact is that *Chen* does not describe or suggest how to record and decrypt scrambled digital data of the type required by Applicants' claimed invention.

Second, nowhere does *Chen* describe or suggest that at least one descrambling key of at least one of said plurality of control packets [is] identical to the at least one descrambling key of the preceding control packet as required by step (a) of Applicants' claim 1. Thus, the very fact that *Chen* has different keys precludes the system described in *Chen* from having duplicated keys – an aspect that Applicants' claimed invention is directed to.

Third, the Examiner's characterization that *Chen* teaches to store keys only when they are different is simply wrong. In particular, in *Chen* the keys are all different – there are no duplicate keys. Thus, *Chen* does not teach to store keys only when they are different – ***Chen simply teaches to store keys***. There is no distinction made in *Chen* as to when to store a key. Yet – in contrast – Applicants' claimed invention is directed to making a distinction when to store a key – by storing in a table said control packets containing said at least one descrambling key when said value changes; and not storing said control packets containing said at least one descrambling key when said value has not changed as required by step (c) of Applicants' claim 1. **Nowhere** does *Chen* describe, or suggest, such a requirement.

Fourth, since *Chen* simply teaches to store keys and makes no distinction between keys that are the same or not – the combination with *Unger* still does not yield Applicants' claimed invention.

For the same reasons described above, similar distinctions from *Chen* are found in Applicants' independent claim 16 (emphasis added):

Method for recording comprising:

(a) receiving a scrambled digital data stream including a plurality of control packets containing a descrambling key having a value which periodically changes and at other times is identical to a preceding control packet;

(b) identifying in said data stream said plurality of control packets containing said descrambling key;

(c) creating a table of said control packets containing said descrambling key when said descrambling key value is absent from said table;  
and,

(d) recording said data stream and said table on a data storage medium.

In view of the above, the combination of *Unger* and *Chen* does not yield the requirements of Applicants' claims 1 and 16. As such, dependent claims 3, 4, 5, 14 and 15 are also patentable over these references.

**VIII. CONCLUSION**

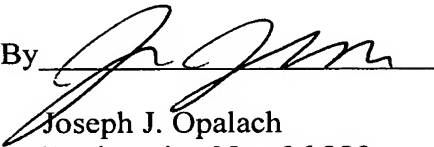
For the above reasons, Applicant respectfully submits that claims 1 and 16 are patentable. It is therefore respectfully requested that

- the rejection of independent claims 1 and 16 under 35 U.S.C. § 103(a); and
- the rejection of dependent claims 3, 4, 5, 14 and 14 under 35 U.S.C. § 103(a);

all be reversed.

Respectfully submitted  
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## **IX. CLAIMS APPENDIX**

1. (Previously presented) Method of recording scrambled digital data comprising the steps of:

- (a) receiving a scrambled digital data stream including a plurality of control packets containing at least one descrambling key; said at least one descrambling key having a periodically changing value, the at least one descrambling key of at least one of said plurality of control packets being identical to the at least one descrambling key of the preceding control packet;
- (b) identifying in said data stream said plurality of control packets containing said at least one key for descrambling at least a part of the data of the stream;
- (c) storing in a table said control packets containing said at least one descrambling key when said value changes; and not storing said control packets containing said at least one descrambling key when said value has not changed; and
- (d) recording the data stream and said table on a data storage medium.

2. (Canceled).

3. (Previously presented) Method according to Claim 1, wherein at step (c), an index indicating the position of the control packet in the data stream is stored in the table.

4. (Original) Method according to Claim 3, wherein the index comprises a serial number of the control packet with respect to the first packet of the data stream recorded.

5. (Original) Method according to Claim 3, wherein the index comprises a time stamp associated with said control packet which defines its position in the data stream with respect to clock reference values transmitted in the data stream.

- 6. (Canceled).
- 7. (Canceled).
- 8. (Canceled).
- 9. (Canceled).
- 10. (Canceled).
- 11. (Canceled).
- 12. (Canceled).
- 13. (Canceled).

14. (Previously presented) Method according to Claim 1, wherein said storing step further comprises forming said table of said descrambling keys in a sequence related to scrambling changes in said received digital data stream.

15. (Previously presented) Method according to Claim 1, wherein said storing step further comprises assembling said table of said descrambling keys with non-duplicate descrambling key values.

16. (Previously presented) Method for recording comprising:

(a) receiving a scrambled digital data stream including a plurality of control packets containing a descrambling key having a value which periodically changes and at other times is identical to a preceding control packet;

(b) identifying in said data stream said plurality of control packets containing said descrambling key;

(c) creating a table of said control packets containing said descrambling key when said descrambling key value is absent from said table; and

(d) recording said data stream and said table on a data storage medium.



**X. EVIDENCE APPENDIX (NONE)**

None.

**XI. RELATED PROCEEDINGS APPENDIX (NONE)**

None.